Organ and Tissue Transplantation

USSR UDC 612.17+612.215.7-089.843

PRIYMAK, A. A., GERASIMENKO, N. I., ANICHKOV, M. N., VIGDORCHIK, I. V., AVERBAKH, M. M., DOBKIN, V. G., DEHIDOV, B. S., VIGDORCHIK, S. I., PAKHOMOVA, Z. I., PETUKHOVA, I. V., VAKSMAN, B. M., GALAYEVA, V. N., and KOZLOV, P. D.

"Use of an Isolated Heart-Lung Preparation in Experimental Transplant Surgery"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

Abstract: Brief preliminary report on the use of an isolated heart-lung preparation with a working heart in more than 200 experiments on dogs, swine, calves, and sheep. The isolated heart-lung preparation is connected by special cannulas to the peripheral vessels of the recipient's systemic circulation. The isolated lungs inspire an air mixture under hyperventilation conditions. The parameters of electrical activity of the donor's and recipient's hearts, recipient's brain, hemodynamics, biochemical changes in blood, external respiratory function, blood gases, morphology of the tissues of the isolated heart-lung preparation (in various stages of survival) and of the recipient (following biological oxygenation) are investigated. The experiments showed that the physically stabilized heart-lung preparation when used as a biological oxygenator remains viable and ensures good lung and heart function for 10 to 15 hours. It is capable of adjusting automatically to the recipient's circulation and without traumatizing the formed elements

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200620013-5"

USSR

PRIYMAK, A. A., et al., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

of the blood maintains the necessary blood flow rate.

2/2

USSR UDC 539.4:620.169.2

DEMIDOV, G. A., KORSAKOV, B. Ye. (Riga), Riga Institute of Civil Aviation Engineers

"Concerning Step-by-Step Testing for Long-Term Strength"

Kiev, Problemy Prochnosti, No 12, December 1972, pp 17-18

Abstract: The damaging or strengthening of metal materials in the process of routine tests under unsteady force conditions has been studied with considerable detail. However, not many papers treat this question in application to prolonged static tests under conditions of creep. In the present article are presented experimental data of direct and single-step tests upon the long-term strength of alloy KhN77TYUR (EI437B). Note is taken of some particularities of the behavior of this alloy during single-step tests, connected with the manifestation of strengthening during preliminary loading at low intensities. A "collapse" of long-term strength (weakening of the material) was detected at low values of elapsed preliminary loading time. 1 table. 3 figures. 9 references.

1/1

Automatic Control: Instruments

USSR

UDC: 621.314.2

GERASIMOV, I. M., DEMIDOV, G. S., and ROSTOVTSEV, A. M. [Moscow Higher Technical School]

"Device for Automatic Control of Switches"

Avt. sv. SSSR. kl. G 06 f 7/00, No 332458, zayavl. 27.03.70, opubl. 25.04.72 (Author's Certificate, USSR, class G 06 f 7/00, No 332458, claimed 27 March 1970 published 25 April 1972) (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A408P)

Translation: A device is proposed for automatic control of switches which contains a shift-code converter, an activating device, a course recorder, and switching contacts. One illustration

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200620013-5"

DEMIDOV, K.A.

MEDICINE

VOYENNO-MEDITSINSKIY ZHURNAL, No. 1, 1970, pp. 86-88

OUR EXPERIENCE WITH REANIMATION

by

Lieutenant Colonel of Medical Service K.A. Demidov and Major of Medical Service K.P. Shvedov

Experimental and clinical investigations of V.A. Negovskiy, A.A. Vishnevskiy, N.V. Petrovskiy, P.A. Kupriyanov and others showed that the methods of reanimation can be extensively used in surgery, anesthesiology, traumatology, pediatry, internal medicine, obstetrics and gynecology not only at large clinics and reanimation centers, but also in small medical institutions.

In our hospital the reanimation ward was organized in 1967 on the basis of the dressing room of the reception department. Originally, this task included the treatment of persons suffering from severe forms of traumatic shock, and also of patients in the terminal stage. For doing these tasks, we had to give all physicians of the hospital and middle medical personnel theoretical and practical exercises on the employment of modern reanimation methods as well as to equip and outfit a reanimation ward in corresponding manner. In this ward there are a numerous apparatus (Model's two electrocardiograph, oxyhemometer, pulse tachometer, electrocorticotherapy apparatus, set of intubation tubes, one liter of blood, 6 liters of blood substitutes, physiological solution, and a 5% glucose solution in ampules, cardio-vascular agents, antidotes, narcotics, muscle relaxants, novocaine, novocaine amide, O2 reserve stock with calculation of a three-day requirement for the patients. On a special small table, sterile sets of instruments are kept for thoracotomy, tracheostomy, intravenous and intraarterial forcing of blood. There is everything needed for preparation and catheterization of the urinary bladder.

The placement of the reanimation room in the reception department created certain difficulties. Therefore, in 1968 we used an operating room of the surgical department as reanimation ward. Next to the operating block the ward of intensive therapy was set up in which all things are kept in constant readiness which are necessary for doing urgent intubation, tracheostomy, intracardial forcing of blood, the DP-1 apparatus, a suction apparatus, a cylinder, etc. For the organization of the work in the reanimation room and in the intensive therapy ward the anesthesiologist on duty is responsible. From 1967 to 1969, we made 26 reanimations under examples. In 5 the reanimation results were favorable, but due to postoperative complications one died on the second day from repeated bleeding, another on the 14th day from encephalitis, one third at the 26th day from mediastinitis, two fourth on the 30th day from peritonitis. In nine persons death occurred during 1 to 4 hours after the restoration of heart and respiration, due to ventricular fibrillation, cardiac weakness, functional disturbance of respiration. Three patients died on the second day from developed severe hypotonia, cardiac weakness, anuria. Of three patients who were admitted to the hospital in the [illegible] of clinical death, the cardiac function could not be restored.

Reanimation measures started at once after the patients admission to the hospital. Twelve times we resorted to direct heart massage, ten times to indirect massage, and twice to massage through the diaphragm. The immediate start of reanimation did not exclude

Surgery

USSR

UDC 617.089.5

DEMIDOV, K. A., Lt Col Med Serv and SHVEDOV, K. P., Maj Med Serv

"Our Experience With Reanimation"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 4, 1970, pp 86-88

Abstract: Of 26 cases of reanimation attempted in patients with extremely serious conditions, seven were successful (complete recovery). Of the four others successfully reanimated, one died the following day of secondary hemorrhage, another died 14 days later of meningitis, the third died four weeks later of mediastinitis, and the fourth died a month later of peritonitis. Ten patients successfully revived died within four hours, of cardiac weakness and respiratory failure. Three died of grave hypotension and anuria. In three cases admitted to the hospital in a state of clinical death, it was impossible to restore cardiac activity. Revival measures began immediately upon admission to the hospital. Direct cardiac message through a thoracotomy, was performed in 12 cases, and indirect massage through the diaphragm in ten cases. At the same time, all signs, symptoms, and reflexes were observed and immediate, complex, differentiated therapy attempted. The duration of cardiac massage was 20 minutes to 2 hours. The basic reanimation complex consisted of: artificial induction of respiration with appropriate equipment, cardiac massage, intravenous and intro-arterial transfusion of blood and blood substitutes, use of cardiovascular agents, vitamins, glucose, and antihistamines. Patients who

1/2

USSR

DEMIDOV, K. A. and SHVEDOV, K. P., Voyenno-Meditsinskiy Zhurnal, No 4, 1970, pp 86-88

Have undergone surgery together with reanimation are extremely sensitive to changes in the position of their bodies. Even transferring the patient from the operating table to the carriage can cause acute impairment of his condition. Generally survival depends on the reanimation procedures, the interval between the onset of the emergency and arrival at the hospital, and the phase and degree of traumatic shock.

USSR

UDC: 662.7

BUNIN, G. M. and DEMIDOV, L. G.

"Separation of Coal in Magnetic Liquids"

Moscow, Khimiya Tverdogo Topliva, No 4, 1970, pp 141-143

Abstract: New techniques for benefication of coal and other minerals were developed at the Institute of Mineral Fuels: magnetohydrodynamic separation and separation in magnetic liquids. Bulk repulsive force f, determined by the following equation, is induced in liquid placed in crossed magnetic and electric fields:

$$f = \rho g + K_1 \cdot \text{grad } H^2 + K_2 \cdot \text{grad } E^2 + K [E \times R],$$

where ρ = density of liquid, g = acceleration due to gravity, H = magnetic field intensity, and E = electric field intensity; K_1, K_2, and K_3 = constants characterizing physical properties of liquid (magnetic and dielectric susceptibility and conductivity). Based on physical properties of coals as a mechanical mixture of different petrographic components, it appears possible to separate a coal mixture by the totality of differences in mechanical and electromagnetic constants of individual coal components through appropriate selection of the density of the

USSR

BUNIN, G. M. and DEMIDOV, L. G., Khimiya Tverdogo Topliva, No 4, 1970, pp 141-143

separatory medium, magnetic and dielectric susceptibilities, and also strength of the external magnetic and electric fields. A key feature of the coal separation process in artificially "weighted" liquid media is the possibility of simple and quite precise regulation (with a precision greater than 0.01 g/cm^3) of the repulsive force, making the method promising for ultrafine separation of organic and mineral components of coals. A second feature of the method is the possibility of getting several products in one separatory run.

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USSR UDC 535.231.4.07:535.89

BAYUNOV, V. I., DEMIDOV, M. I., OGURTSOVA, N. N., Candidate of Technical Sciences, PODMOSHENSKIY, I. V., Candidate of Technical Sciences, SMIRNOV, V. L., SHELEMINA, V. M.

"An Installation for the Measurement of High Brightness Temperatures"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 12, Dec 70, pp 24-27

Abstract: An installation for the measurement of brightness temperatures in the range of 6,000-100,000 ° K, with a time resolution of up to 3 x 10^{-8} seconds, is described. This is the IF-88 installation, designed and constructed by I. V. Bolotnikov and I. V. Peysakhson. Determination of the temperature is based upon successive comparison of the brightness of the source under investigation and that of Standard EV-45, the measurement being conducted simultaneously in two wavelength intervals, isolated by interference filters from a spectral range of 220-400 nanometers. 3 figures, 3 bibliographic entries.
1/1

USSR UDC: 621.373:530.145.6

ALPATOV, Yu. V., DEMIDOV, M. N., MEDVEDEV, V. D., SEDOV, G. S., SIBIREV, A. V.

"A Single-Mode Gas Laser With Stabilization of Emission Power"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Technology. Scientific and Technical Collection. Gas-Discharge Devices), 1970, vyp. 2(18), pp 64-70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D265)

Translation: The paper describes a single-mode helium-neon gas laser which has stable emission power and stable position of the optical axis.

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USSR

MEN'SHCHIKOV, V. YA., and DEMIDOV, N. N., State Central Order of Lenin Institute of Physical Culture

"Accuracy of Reproduction of Spatial and Temporal Parameters of Movements"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 7,1972, pp 29-32

Abstract: In a study of motor memory, 13- to 14-year-old gymnasts were instructed to lie on th ir backs with hands behind their head and raise their right thigh by 45°, hold it were for two counts, return it to the original position, and after various intervals of time following practice attempts duplicate the amplitude of the movement. The mean error of the accuracy in reproducing the movement was 2.46° after a 1 minute interval, 2.45° after 3 minutes, and 4.21° after 5 minutes. To determine the accuracy of reproducing temporal characteristics, the subjects were asked to switch an electric stopwatch on and off at 0.5 sec intervals. The mean error of the accuracy of the movement following practice was 0.052 sec after a minute's rest, 0.09 sec after 3 minutes, and 0.10 sec after 5 minutes. Thus, the accuracy of reproduction of spatial and temporal characteristics of movements is directly related to the time intervals between them.

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USSR

UDC 621.314.61 (088.8)

DEMIDOV, S.L.

"Method For Determining Inaccuracy Of Rectifier Converter"

USSR Author's Certificate No 260000, filed 22 Dec 66, published 7 May 70 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B477P)

Translation: A method is proposed for detection of the inaccuracy of a rectifier [ventil'] converter, connected in a bridge circuit, e.g., of a thyristor rectifier [vypryamitel'] with series and parallel connected rectifiers [ventil']. shunted by resistances and RC-circuits. The proposed method involves clamping up to the connection of the load of a-c voltages to the output of the converter, the presence of which is an indication of inaccuracy. I.R.

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USSR

UDC 621.373.039.7

KURBATOV, L.N., KOZINA, G.S., FAVORIN, V.N., BATALINA, [illegible], BIBIKOV, YE.V., VLASOV, A.N., DEMIDOV, S.S.

"Some Characteristics Of Small-Sized Pulsed Laser With Electron Excitation"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1240-1245

Abstract: The principal characteristics are presented of a small-sized electron-beam pulsed laser with a high radiated power. Feasible types of laser targets are discussed. The construction is shown of a complex multielement target with passive regions. Graphs are shown of 1) The dependence of the radiated power of a single-layer target on the power of the exciting electron beam; 2) The dependence of the radiated power of a multilayer target ("cake") on the power of the electron beam; and 3) The dependence of the radiated power on the pulse recurrence frequency of the exciting electrons for a "cake" target. A graph is also shown of the angular distribution of the emission of single-layer and multilayer targets in a vertical plane coincident from the direction of the electrons and in a horizontal plane coincident from the bombarded surface of the crystal. The authors thank N.A.Ivfis, Ye.D. Naumenko, A.I.Soloveychik, I.Ya. Gol'dshteyn, and S.S. Shakhidzhanov for valuable consultations and aid in the work. 8 fig. 9 ref. Received by editors, 30 May 1971.

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1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THE KOLOMNA GIANT -U-

AUTHOR--DEMIDOV, V.

COUNTRY OF INFO--USSR

SOURCE--KOMSOMOL, SKAYA, PRAVDA, AUGUST 1, 1970, P 4, COLS 1-3

DATE PUBLISHED--01AUG70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--BORING MACHINE, MILLING MACHINE, INDUSTRIAL PLANT, TURBINE BLADE, MANUFACTURING METHOD/(U)KU299 MILLING MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0851 STEP NO--UR/9007/70/000/000/0004/0004

CIRC ACCESSION NO--AN0122895

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AN0122895

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR THE LAST 20 YEARS THE KOLMNA PLANT HAS BEEN PRODUCING HEAVY VERTICAL BORING AND TURNING MILLS WEIGHING FROM 30 TONS UP TO 2,000 TONS. THE MAXIMUM TURNING DIAMETER OF A MILL CONSTRUCTED FOR THE KHAR, KOV TURBINE PLANT IS 20 METERS. THE LATEST MILL TO BE CONSTRUCTED FOR SOME UNNAMED CUSTOMER OUTSIDE THE SOVIET UNION WILL BE THE "KU-299". ITS CHARACTERISTICS ARE ABOUT THE SAME AS THOSE OF THE KAHR, KOV MILL. HOWEVER, ITS TOLERANCE FOR AN IDEAL CIRCLE WILL BE HIGHER -0.04-0.06 MM DEVIATION FOR ANY SIZE DIAMETER-. IT WILL BE USED TO TURN TURBINE COMPONENTS WEIGHING UP TO 560 TONS AND 20 METERS IN DIAMETER. ACCORDING TO S. P. NALETOV, CHIEF DESIGNER OF THE KOLOMNA PLANT, THE MILL WILL HAVE A UNIQUE CROSS HEAD BOLTED DOWN TO THE COLUMNS. IT CAN BE RAISED WHEN NEEDED BY SIMPLY REMOVING IT, BUILDING UP THE COLUMNS, AND BOLTING THE CROSS HEAD BACK IN PLACE. WITH THE AID OF A PROGRAMMING DEVICE THE "KU-299" CAN SHAPE PARTS WHOSE GENERATRIX IS A CURVE OF ANY GIVEN SHAPE.

UNCLASSIFIED

USSR

UDC: 681.327.11

SEROV, V. F., DEMIDOV, V. D.

"Automatic System for Measuring, Recording, and Processing of Physical Quantities"

USSR Author's Certificate Number 301536, filed 8/08/69, published 30/07/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A374 P)

Translation: An automatic system is suggested for measuring, recording, and processing of physical quantities. In order to increase the accuracy of information processing, the system includes collection circuits, decoders, and a control flip-flop with three inputs, one of which is connected to the output of the high-order decade of the decimal mode counter, and the other two of which are connected through the collector circuit and decoder to the outputs of the decimal counters marking the time, while the output is connected to the input of the motor and coded information accumulator. 1 illustration.

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USSR

UDC 622.7:669.213

DEMIDOV, V. I.

"Extraction of Free Gold From Polymetallic Ores at the Leninogorsk Plant"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 76-80

Abstract: A description is given of a nes (1968) gravitational installation for increasing the extraction of free gold, as an addition to the ore size-reduction cycle. A flow diagram of the installation, which contains jigging machines, is presented. With the inclusion of jiggers in the size-reduction cycle, extraction of gold in commercial concentrates increased by 3.3%. It is concluded that in the processing of polymetallic gold-containing ores, jigging machines are more efficient than hydraulic traps for extracting free gold in the ore size reduction cycle.

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DEMIDOV, V.K.

So: JPRS 59279
14 June 73

(2)

STUDY OF THE GROWTH CONDITIONS AND PROPERTIES OF SILICON FILMS DEPOSITED BY THE CHLORIDE METHOD

All-semiconductor materials

[Article by Z. I. Kir'yashkina, D. I. Bilenko, V. K. Demidov, Yu. N. Galishnikova, N. G. Zykova, L. D. Zorina, V. N. Ten'kaveva; Novosibirsk, Protsessy Rosta i Struktura Monokristallicheskikh Sloyev Poluprovodnikov -- Trudy Simpoziuma, Russian, Part 2, 1969, pp 62-68]

Polycrystalline semiconducting films are of defined interest. The structural imperfection characteristic of them can be successfully used: the intercrystallite barriers insure a high specific resistance (to 10^6 ohm-cm) of the silicon films serving as insulating in the integrated circuits, and the surface roughness permits the creation of a stable contact which is the basis for certain types of diodes. On the other hand, the low deposition temperature (by comparison with the epitaxial growth) facilitates the realization of the multilayered semiconducting structures during the first period after significant reduction of the admixture diffusion from the substrate.

Below, there is a discussion of the results of studying the effect of the technological conditions of the polycrystalline silicon film growth on their electrophysical parameters.

Procedure for Obtaining and Studying Melts

The silicon films were obtained by the chloride method [1-3] in the horizontal open tube with an electric furnace as the heater. The temperature distribution along the furnaces appears in Figure 25. The substrates made of molten quartz and polycrystalline graphite were placed in two parallel rows along the deposition zone. The thermostatted evaporators of two structural designs were used: bubbling and nonbubbling. The total hydrogen flow was 60 liters/hours (with a reactor diameter of about 20 mm); here, the evaporator with the $SiCl_4$ usually passed a flow of 20 liters/hour, and 10 liters/hour went through the evaporator with BBr_3.

The thickness of the grown layers of silicon was estimated by the gravimetric method. A study was also made of the electrophysical, the optical and structural properties of the films.

USSR

UDC 621.382.2.029.64

DEMIDOV, V.K., KLIMOV, B.N., KONTENKO, V.I.

"Semiconductor Diode-Displays Of The Submillimeter Band Of Radio Waves"

Elektron.tekhnika. Nauch.-tekhn.sb. Kontrol'no-izmerit.apparatura (Electronic Technology. Scientific-Technical Collection. Monitoring And Testing Equipment), 1971, Issue 1(22), pp 66-73 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11B162)

Translation: Two polycrystalline layers of silicon are successively deposited on a graphite substrate: the lower 20 kilomicrons thick of p^+-Si doped with boron in a concentration of 10^{18} cm^{-3}, and the upper 0.2 micrometer thick of p-Si with hole concentrations varying from 10^{17} cm^{-3} at the external surface to 10^{18} cm^{-3} at the boundary of the contact of the two layers of silicon. A tungsten needle was clamped to the top of the p-Si film and in this manner semiconductor diodes were prepared which in the range of wavelengths of 0.27--1.5 mm had a voltage sensitivity of 0.5--1500 v/w and an output resistance from several kilohms to tens of ohms. The threshold value of the power in the 0.8-mm range is not worse than 10^{-10} watt. 6 ill. N.V.

1/1

USSR

UDC 534.232.082.73.001.5

DEMIDOV, V.P., MARTYNOV, V.P., MOOHALOV, B.F., SMIRNOV, A.A.

"Electric Impedance Of A Film Piezo Converter"

Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 648-652

Abstract: The impedance of experimental specimens of piezo converters based on CdS is studied by direct methods in the 200-600 MHz range, in order to determine the coefficient of electromechanical coupling, K, ofthe film. Measurements conducted in pulse and continuous regimes are described. The authors are grateful to N.I. Fokin and B.L. Bobikov for assistance in the work. 2 fig. 7 ref. Received by editors, 22 Oct 1970.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200620013-5"

ELECTRONICS

USSR Microelectronics UDC: 534.232.082.73-8

BRITSYN, K. I., DEMIDOV, V. P., MARTYNOV, V. P., MOCHALOV, B. F., SMIRNOV, A. A., and IVANOV, L. A.

"Studying Thin-Film CdS-Piezo-Converters"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No 9, 1970, pp 1937-1944

Abstract: The authors present the results of the study of CdS-piezo-converter test specimens vaporized onto Al_2O_3. Basic converter characteristics are calculated and it is shown that the frequency characteristic depends as much on the relationships between the electrical impedances of a converter and the measuring tract as it does on the relationships between the mechanical impedances of cadmium sulfide and the material of an acoustic line. A shift in the least loss point is predicted for CdS on Al_2O_3 with respect to mechanical resonance frequency. This shift makes it possible to vary the band width and the position of the least loss point completely by electrical methods. A simple equivalent converter circuit proposed by the authors makes it readily possible to estimate its harmonization with the measuring tract and to determine the aspect of the frequency characteristic for various methods of excitation. The experimental converter specimens yielded a loss in the order of 30 db for a double conversion with a band of approximately 35 percent. The minimal loss point shifts toward the lower frequency region in comparison with the acoustic resonance point. The experimental and theoretical data are in good agreement. The loss values presented are not minimal and can be reduced more using

USSR

BRITSYN, K. I. et al., Radiotekhnika i Elektronika, Vol. 15, No 9, 1970, pp 1937-1944

supplementary matching equipment. The original article has six figures, 12 formulas, and nine bibliographic entries.

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USSR

UDC 669.715.3.85.86.018.29(088.8)

DRITS, M. Ye., KADANER, E. S., TOROPOVA, L. S., KOP'YEV, I. M., DEMIDOV, Yu. S., LEYKIN, A. I., YEGOROV, N. I. [Institute of Metallurgy imeni A. A. Baykov]

"Aluminum-Based Alloy for Foil"

USSR Author's Certificate No. 276419, Filed 13/11/68, Published 16/10/70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, I748P).

Translation: The alloy has the following composition (%): Cu 0.5-2.0, at least one of the REM 0.1-0.5 and Zr 0.05-0.15, impurities $\leq$ 0.01, remainder Al. The introduction of Cu and the rare and refractory metals increases its physical and mechanical properties. The alloy shows σ_b 30 kg/mm^2, withstands 30·10^6 cycles without rupture, and can be rolled into a foil 10-20μ thick.

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USSR

UDC 669.715.22.85.86.296.018.2(088.8)

DRITS, M.Ye., KADANER, E. S., TOROPOVA, L. S., KOP'YEV, I.M., DEMIDOV, Yu.S., LEYKIN, A. I., YEGOROV, N. I.

"Aluminum-Based Alloy for Foil"

USSR Author's Certificate No. 276420, Filed 13/11/68, Published 16/10/70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5, 75OP).

Translation: This alloy has the following composition (%): Ag 0.75-2, REM 0.1-0.5, Zr 0.05-0.15, impurities $\leq$ 0.01, Al remainder, has high σ_b (26 kg/mm^2) and high durability and stability of properties with cyclical loading, has good technological properties for rolling to a thickness of 10-20μ; the foil has good surface qualities.

1/1

USSR UDC: 539.385

DRITS, M. YE., KADANER, E. S., KOP'YEV, I. M., TOROPOVA, L. S. and DEMIDOV, YU. S., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Factors Affecting the Fatigue Characteristics of Aluminum Foil of Various Compositions"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 112-116

Translation: Aluminum foil finds applications in the production of miniature computer membranes operated under cyclic loading conditions. There are almost no data in reference sources on the fatigue strengths of aluminum foil. This study deals with the effect of alloying components on the limited service life of aluminum foil. Ordinary fatigue curves have been plotted for pure A99 aluminum and Al alloy with 4% Zn. The effect of the foil's microgeometry on fatigue properties was studied on foil from Al alloy with 4% Zn. It is shown that the fatigue strength of foil from aluminum alloys depends on: 1) foil composition, governing the presence or absence of internal defects; 2) alloy strength, and 3) the state of internal and external interfaces. (illustrations, 4 biblio. ref.; summary)
1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--DYEING OF MIXTURES OF CELLULOSE POLYAMIDE FIBERS BY DIRECT LIGHTFAST DYES -U-
AUTHOR--DEMIDOVA, E.N., YERSHOV, A.P., KHARKHAROV, A.A.

COUNTRY OF INFO--USSR

SOURCE--TEKST. PROM. (MOSCOW) 1970, 30(1) 86

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--DYE, CAPRONE, CELLULOSE RESIN, POLYAMIDE RESIN, SYNTHETIC FIBER, NATURAL FIBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/1067 STEP NO--UR/0342/70/030/001/0086/0086

CIRC ACCESSION NO--AP0052433
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0052433

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DYEING PROCEDURE IS RECOMMENDED FOR KAPRON COTTON BLENDS WITH DIRECT DYES. DIRECT YELLOW 2K, DIRECT RED S, AND DIRECT BLUE WERE TESTED. THE RETENTION OF 0.5-1.5PERCENT (ON FABRIC WT.) OF DYES WAS ATTAINED WHEN DYEING WAS CONDUCTED AT 85-90DEGREES, PH 5, IN THE PRESENCE OF 15-20PERCENT (NH SUB4) SUB2 SO SUB4 DURING 80 MIN.

UNCLASSIFIED

USSR

UDC 621.382.2:539.1.074

LITOVCHENKO, P. G., GONCHAR, V. G., BARABASH, L. I., DEMIDOVA, G. N., and KIBKALO, T. I.

"Some Special Semiconductor Detector Types for Studying Nuclear Reactions"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 4, 1970, pp 122-129

Abstract: Noting that recent articles have been devoted to nuclear reaction detectors made of silicon compensated with lithium and having a sensitivity region thickness of up to 6 mm, the authors describe their experiments using charged particles of higher energy which entered the silicon to a depth of several millimeters. The detectors used by the authors had a resolution of 50-60 kev for alpha particles of Am^{243} with an energy of 5.8 Mev. The better detector specimens with an area of about 2 cm^2 had a resolution of 30 kev. The plot of the Am^{243} alpha particle spectrum detected by a No. 52 specimen is shown. To prepare detectors of this and other types, the authors used the brand BKD-1000 of silicon, which is obtained from the noncrucible zone of the melt and contains less than $2 \cdot 10^{16}$ oxygen atoms per cc, with the lifetime of

USSR

LITOVCHENKO, P. G., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 4, 1970, pp 122-129

minority carriers varying from 200-400 μs and a dislocation concentration of less than $5 \cdot 10^4$ cm^{-2}. A diagram of the cross-section construction of the planar detector as well as the diagrams of the ring and "hat" types is shown.

2/2

USSR

UDC 519.214;519.217

DEMIDOVA, S. A.

"Certain Estimates for Homogeneous Random Processes with Independent Increments"

Tekhn. Kibernetika. (Khar'kov. Otd.). Vyp.1 [Engineering Cybernetics (Khar'kov Division), No. 1--Collection of Works], Kiev, 1970, pp 15-19, (Translated from Referativnyy Zhurnal Kibernetika, No. 5, 1971, Abstract No. 5V27 by Ya. Nikitin).

Translation: Certain problems are studied which are related to the repeated logarithm rule for Brownian motion. Suppose x(t) is Brownian motion on a straight line, $x(0) = 0$, $\gamma(n) \to \infty$, $n \to \infty$. The form of the function $\phi(n)$ is found, providing fulfillment of the relationship

$$P\left\{\lim_{n\to\infty} \max_{0\le t\le\gamma(n)} \frac{|x(t+n)-x(t)|}{\varphi(n)} = 1\right\} = 1.$$

Suppose C is a positive constant. It is found that if where $n \to \infty$ $\gamma(n) \sim Cn$, $\phi(n) = (2n \ln \ln n)^{1/2}$, if $\gamma(n) \sim Cn^{1+\alpha}$, $\alpha > 0$, then $\phi(n) = (2n^{\alpha} \ln n)^{1/2}$, and finally, if $\gamma(n) \sim C \exp(n)$, then $\phi(n) = \sqrt{2n}$. These relationships show inparticular that in this situation the repeated logarithm rule is not evenly fulfilled.

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Glass and Ceramics

USSR

UDC 666.1:535.37

(2)

PUKO, R. A., PINAYEVA, M. M., KUZNETSOVA, V. V., KOZHAN, T. M., DEMIDOVICH, B. K., and KHOMENKO, V. S., Institute of Physics, Academy of Sciences, Belorussian SSR

"Luminescence of Terbium-Activated Glass"

Moscow, Neorganicheskiye Materialy, Vol 9, No 10, Oct 73, pp 1805-1808

Abstract: Results are presented from a study of the adsoption spectra and luminescence as well as the kinetics of luminescence of sodium-silicate glass with additions of Al_2O_3, CaO and MgO and activated with Tb^{+3} ions. Glass compositions were selected close to industrial glasses used in the technology of structural materials. The spectra in kinetics of silicate glass luminescence containing 15 wt % Na_2O and varying concentrations of Al_2O_3, CaO, and MgO with Tb^{+3} ions revealed differences associated with glass composition. The spectra of glasses containing Al_2O_3 have additional lines at 526 and 535 microns which are absent in the other glass spectra. There was observed a tendency of diminished luminescence damping time from the 5_{D_4} level according to the degree of increased CaO and MgO content.

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PUKO, R. A., et al., Neorganicheskiye Materialy, Vol 9, No 10, Oct 73, pp 1805-1808

The relaxation times were determined for luminescence levels 5_{D_3} and 5_{D_4} of the Tb^{+3} ion in the glasses and it was shown that the kinetics of 5_{D_4} level colonization in the case of nonresonant excitation determines the transitions from the 5_{D_3} level. Two figures, two tables, seven bibliographic references.

2/2

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECTIVENESS OF USING A NEPHELINE CONCENTRATE IN THE PRODUCTION OF FOAM GLASS -U-

AUTHOR-(03)-AKULICH, S.S., DEMIDOVICH, B.K., PILETSKIY, V.I.

COUNTRY OF INFO--USSR

SOURCE--STEKLO KERAM. 1970, 27(2), 18-20

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FOAMED GLASS, ALUMINUM OXIDE GLASS, GLASS COMPOSITION

D

PROXY REEL/FRAME--1995/1257 STEP NO--UR/0072/70/027/001/0018/0020

CIRC ACCESSION NO--AP0116719

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200620013-5"

2/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116719

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PURPOSE OF THE PRESENT INVESTIGATION CONSISTED IN OBTAINING OPTIMUM COMPNS. FOR FOAM GLASS AT A MAX. CONTENT IN THEM OF AL SUB2 O SUB3. SEVERAL COMPNS. OF HIGH ALUMINA GLASSES WERE FOUND IN THE SIO SUB2-R SUB2 O SUB3 RO-R SUB2 O SYSTEM. FOAM GLASS BASED ON GLASS COMPN. DESIGNATED 6H WAS FOUND TO BE BEST AS TO THE QUALITY AND THE TECH. PRODUCTION PARAMETERS. INCREASING THE AL SUB2 O SUB3 CONTENT IN THE GLASS TO 7.5PERCENT AND HIGHER RESULTED IN INCREASED FOAMING. FOR THE 6H COMPN. THE MAX. FOAMING TEMP. WAS 830DEGREES. ALL OF THE COMPNS. TESTED ARE SUITABLE FOR THE PREPN. OF OFAM GLASS BY THE POWDER METHOD. THE PRINCIPAL ADVANTAGE OF THESE COMPNS. IS THAT THEY REQUIRE LESS CALCINED SODA THAN THE COMPNS. HERETOFORE USED. THEIR COM. USE THUS WILL NOT ONLY SOLVE SEVERAL TECH. PROBLEMS, BUT WILL BE MORE ECONOMICAL. FACILITY: MINSK. GOS. NAUCH. ISSLED. INST. STROIT. METER., MINSK, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CAST IRON -U-

AUTHOR-(03)-MAYURNIKOV, A.V., KALININA, L.T., DEMIDOVICH, N.S.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,891
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST IRON, CHEMICAL PATENT, CHEMICAL COMPOSITION, CARBON, SILICON, MANGANESE, CHROMIUM, COPPER, PHOSPHORUS, SULFUR, IRON, WEAR RESISTANT METAL, MAGNESIUM, METAL HARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1831 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132096

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0132096

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CAST IRON WITH INCREASED STRENGTH, HARDNESS, AND WEAR RESISTANCE HAS THE FOLLOWING COMPN.: C 3.1-3.4, SI 4.3-4.8, MN 4.9-5.3, CR SMALLER THAN 0.1, CU 0.5-0.8, MG 0.04-0.06, P SMALLER THAN OR EQUAL TO 0.1, S SMALLER THAN OR EQUAL TO 0.01PERCENT, AND FE THE REMAINDER. FACILITY: DNEPROPETROVSKIY ORDENA TRUDOV KRASNOGO ZNAMENI GORNYY INSTITUT IM. ARTEMA.

UNCLASSIFIED

USSR

UDC: 629.7.036.3:621.822.288

DEUDOVICH, V. M. and CHERNOGLAZOV, V. A.

"Studying Gas Turbine Roller Bearings Under a Heavy Load"

Tr. Kazan. aviats. in-ta (Works of the Kazan Aviation Institute), 1971, No 136, pp 59-65 (from RZh-34. Aviatsionnyye i Raketnyye Dvigateli, Moscow, No 3, Mar 1972, Abstract No 3.34.85)

Translation: A stand is proposed for measuring the total moment due to the forces of resistance in bearings and the number of revolutions of the shaft and cage, along with the operating temperature of the bearing and the oil temperature at the input and output of the bearing shells. Original article: two illustrations and eight bibliographic entries.

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USSR

UDC 621.385.632:621.372

KOVALEV, I. S., Corresponding Member of the Academy of Sciences BSSR, KURAYEV, A. A., DEMIDOVICH, YE. M., SHEVCHENKO, F. G., Minsk Radio Engineering Institute

"Efficiency-Optimized Section Gyroamplifiers of the Resonator Type"

Minsk, Doklady Akademii nauk BSSR, No. 12, Dec 71, pp 1082-1084

Abstract: Cascade groupings of electrons in sectioned gyroresonance amplifiers is used to achieve high electron efficiency and ensure at the same time high stability of the amplifier. It is noted that in ordinary two-resonator designs of gyroamplifiers consisting of a modulator, a grouping region and an energy selector, the conditions for achieving high efficiencies and the conditions for ensuring a high stability reserve are incompatible. Effective grouping of electrons in the selector is required to achieve high efficiencies in two-resonator designs but it is achieved only for a large length or a high Q of the resonator of the selector; calculations have shown that efficiency-optimal regimes of a two-resonator design are in the generation region and therefore it is necessary to introduce into the amplifier circuit an additional resonator to provide additional grouping of the electron flow. The Rosenbrock method of

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KOVALEV, I. S., et al, Doklady Akademii nauk BSSR, No. 12, Dec 71, pp 1082-1084

seeking the extremum of a multidimensional function was used to optimize the circuit of the sectioned resonator-type gyroamplifier, since it is most suitable for this class of problems. The results show that efficiencies of 80% are achieved with a doubled stability reserve in the optimized circuit of the gyroamplifier with autonomous pregrouping.

USSR UDC 621.385.632:6

KOVALEV, I. S., Corresponding Member of the Belorussian SSR Academy of Sciences, KURAYEV, A. A., DEMIDOVICH, Ye. M., SHEVCHENKO, F. G., Minsk Radio Engineering Institute

"On Calculation of a Gyroamplifier With Takeoff by Coupled Cavities"

Minsk, Doklady Akademii Nauk BSSR, Vol 17, No 11, Nov 73, pp 1007-1010

Abstract: The paper presents optimized versions of energy taps based on coupled resonators in a stability region where self-excitation of the tap is impossible for any electron beam currents and optimized versions of regenerative energy taps where the working current is a given amount lower than the starting current for a given Q of the resonator system of the tap.

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USSR UDC 621.385.632

KOVALEV, I. S., Corresponding Member of the Academy of Sciences of the BSSR, KURAYEV, A. A., DEMIDOVICH, Ye. M., SHEVCHENKO, F. G., Minsk Radio Engineering Institute

"Efficiency Optimized Gyro Amplifier Circuits With Waveguide Energy Tap"

Minsk, Doklady Akademii Nauk BSSR, Vol 16, No 1, pp 24-27

Abstract: Gyroresonance amplifiers with waveguide energy tap have much higher self-excitation currents than amplifiers with a cavity (resonator) tap, and can be used at high power levels. In order to reach a high efficiency in circuits with a short waveguide tap, electron oscillators must be efficiently pregrouped, and therefore the authors consider autonomous and nonautonomous resonator pregroupers having fairly broad detuning of the resonance frequency relative to the working frequency, in addition to considering conventional circuits. The Rosenbock method was used in efficiency optimization of the gyro amplifier circuits, and in solving the boundary value problem for a waveguide tap. The resultant data indicate that introducing a pregrouper appreciably improves the efficiency of a gyro amplifier with waveguide tap, the efficiency of optimized waveguide circuits approaching that of optimized resonator circuits ($\eta_1 = 81\%$). Four tables, bibliography of one title.
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USSR UDC 621.385.632:621.372

KOVALEV, I.S., KURAYEV, A.A., DEMIDOVICH, YE.M., SHEVCHENKO, F.G.

"Gyro-Resonant Devices With A Nonuniform Magnetostatic Field In An Interaction Space"

Dokl. AN BSSR (Reports Of The Academy Of Sciences, Bellorussian SSR), 1971, 15, No 10, pp 896-899 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A152)

Translation: Gyro-resonant devices (GRD) have promise as a source of microwave oscillations of great power, and consequently the problems of increasing their electronic efficiency deserve detailed study. One of the methods of increasing the efficiency of GRD is the choice of the optimum distribution of the magnetostatic field in an interaction space. On the basis of a special form of the method of averages, nonlinear equations are derived and thoroughly analyzed for a GRD with an adiabatic nonuniformity of the magnetostatic field of arbitrary form and amplitude in an interaction space. Computed data are presented for the simplest model of a gyromonotron with a nonuniformity of the specified form. The high value of the electronic efficiency shows that from the energy point of view, GRD have a significant advantage in comparison with classical microwave devices. 5 ref. Summary.

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1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--A STUDY OF GASLESS VARIANT OF S. PARATYPHI B AND ITS EPIDEMIOLOGICAL SIGNIFICANCE -U-
AUTHOR-(04)-KRASYUK, L.S., ZARITSKIY, A.M., DEMIKHOVSKAYA, A.A., ZAKHARENKO, N.I.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5, PP 69-71
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SALMONELLA PARATYPHI, EPIDEMIOLOGY, RIVER WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0092 STEP NO--UR/0016/70/000/005/0069/0071

CIRC ACCESSION NO--AP0114488
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114488

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED 23 STRAINS OF PARATYPHOID B MICROBES WHICH FAILED TO FORM ANY GAS ON THE MEDIA WITH CARBOHYDRATES AND MULTIATOMIC ALCOHOLS. THESE STRAINS WERE ISOLATED FROM THE PATIENTS INFECTED BY DRINKING RIVER WATER. BIOCHEMICAL ACTIVITY AND PATHOGENICITY OF THESE STRAINS FAILED TO CHANGE AFTER PASSAGE ON NUTRIENT MEDIA AND THROUGH THE ORGANISM OF MICE FOR 3 YEARS (OBSERVATION PERIOD). IN STUDYING THE NUCLEOTIDE COMPOSITION OF DNA OF GAS FORMING AND GASLESS VARIANTS OF S. PARATYPHI B THE AUTHORS FAILED TO FIND ANY STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN THE COEFFICIENTS OF THEIR SPECIFICITY AND ALSO BETWEEN THE CONTENT OF INDIVIDUAL NITROGEN BASES. APPARENTLY, THE CAUSE OF THE CHANGES OF BIOCHEMICAL PROPERTIES OF S. PARATYPHI B RESULTING FROM THE STAY OF THE MICROBE IN WATER SHOULD BE SOUGHT IN ALTERATION OF THEIR ENZYMATIC COMPOSITION. FACILITY: KIEV INSTITUT EPIDEMIOLOGII MIKROBIOLOGII I PARAZITOLOGII.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SPECTROPHOTOMETRIC STUDY OF COMPLEXING IN VANADIUM (V) 3,4,DIHYDROXYBENZOIC (PROTOCATECHUIC) ACID ANTIPYRINE AND VANADIUM (IV)

AUTHOR-(03)-SHNAYDERMAN, S.YA., KLIMENKO, YE.P., DEMIDOVSKAYA, A.N.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1), 8-13

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, VANADIUM COMPLEX, BENZOIC ACID, ORGANIC SOLVENT, DISSOCIATION CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1991 STEP NO--UR/0073/70/036/001/0008/0013

CIRC ACCESSION NO--AP0112955

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0112955

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. V(IV), ANTIPYRENE, AND 1,2,3,C SUB6 H SUB3 (OH) SUB3 FORM 2 COMPLEXES ABSORBING AT 440 AND 630 NM AND ARE EXTD. BY C SUB2 H SUB4 CL SUB2 FROM AQ. SOLN. AT PH 4.5-5. THE COMPNS. OF THESE COMPLEXES ARE 1:1:1 AND 1:2:1, RESP., AND THEIR APPARENT MOLAR ABSORPTIVITIES ARE 2200 AND 4200, RESP. V(V), ANTIPYRENE(ANT), AND 3,4,(PRIMENEGATIVE O) SUB2 NEGATIVE C SUB6 H SUB3 CO SUB2 PRIME NEGATIVE FORM A TERNARY COMPLEX WITH PI MAX. 590 NM, ABSORPTIVITY 6500, AND OPTIMUM PH FOR EXTN. 3.7. AT THIS PH THE EQUIL. CONST. FOR THE REACTION VO((PRIME NEGATIVE O) SUB2 C SUB6 H SUB3 CO SUB2) SUB2 ANT SUB3 IN ORG. SOLVENT IN EQUILIBRIUM VO((PRIME NEGATIVE O) SUB2 C SUB6 H SUB3 CO SUB2) SUB2 PLUS 3 ANT IN AQ. SOLN. IS 1.3 TIMES 10 PRIME NEGATIVE3. THE DISSOCN. CONST. FOR VO((PRIME NEGATIVE O) SUB2 C SUB6 H SUB3 CO SUB2) SUB2 IS 2 TIMES 10 PRIME NEGATIVE5. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SPECTROPHOTOMETRIC STUDY OF A VANADIUM,V,SALICYLATE,PYRIDINE SYSTEM
-U-

AUTHOR-(02)-SHNAYDERMAN, S.YA., DEMIDOVSKAYA, A.N.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(2), 154-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, VANADIUM COMPLEX, SALICYLATE, PYRIDINE, TARTRATE, OXALATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2129 STEP NO--UR/0073/70/036/002/0154/0157

CIRC ACCESSION NO--AP0125713
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0125713

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. V(V) FORMS AT PH 2.75-3.75 A 1:2:2 COMPLEX WITH SALICYLATE AND PYRIDINE WITH IS EXTD. BY C SUB2 H SUB4 CL SUB2 FROM AQ. SOLN. CONTG. 40PERCENT MEOH TO PREVENT PPTN. OF SALICYLIC ACID. THE COMPLEX ABSORBS AT 540 NM AND IS NOT VARY STABLE. IF TO A SOLN. CONTG. 2 TIMES 10 PRIME NEGATIVE4 M V, 0.6 M SALICYLATE, AND 0.8 M PYRIDINE THE FOLLOWING EXCESSES (AS MULTIPLES OF THE V CONCN.) OF LIGAND ARE ADDED, THE ABSORBANCE IS CUT IN HALF: F 120, TARTRATE 1.5, CITRATE 5, AND OXALATE 3. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

USSR

DEMIKHOVS'KA, A. A., ZAKHARENKO, N. I., ZARYTS'KYY, A. M., and MEDNYK, M. R., Kiev Scientific Research Institute of Epidemiology, Microbiology, and Parasitology, Kiev

"Comparative Study of the Nucleotide Composition of DNA of Salmonella typhi Strains of Different Phage Types"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 751-752

Abstract: The nucleotide composition of DNA of S. typhi of the phage types A, F_1, D_1, D_6, C_1, and Imperfect (of an unknown phage type) was studied. Isolation of DNA was carried out by the Kirby-Georgiyev phenol method modified by Demikhovs'ka. The nucleotide composition was determined chromatographically. The content of guanine (G), adenine (A), cytosine (C), and thymine (T) and the DNA specificity coefficient GC/AT were determined. There were no significant differences in the content of individual nucleotides between strains of the same phage type. The content of GC [G + C] was 53.4, 52.7, 55.2, 56.7, 55.1, and 54.6 percent for A, F_1, D_1, D_6, C_1, and Imperfect, respectively. GC/AT was 1.15, 1.13, 1.23, 1.32, 1.23, and 1.20 for A, F_1, D_1, D_6, C_1, and Imperfect, respectively. Statistically valid differences were established only for D_1 and D_6, the DNA guanine content of which differed from that found for the

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200620013-5"

other phage types. This was reflected in the high GC/AT value for D_6. One may assume that the differences shown by D_1 and D_6 were due to the presence of the corresponding phages (d_1 and d_6) in the nuclear apparatus of S. typhi of these phage types.

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USSR UDC: None

DEMIKHOVSKIY, V. Ya. and PROTOGENOV, A. P.

"Electromagnetic Excitation of a Two-Component Plasma in a Quantizing Magnetic Field"

Leningrad, Fizika Tverdogo Tela, vol 14, No 7, 1972, pp 1948-1957

Abstract: The purpose of this paper is to study the quantum effects in the propagation of transverse and longitudinal electromagnetic waves in a solid-state electron-hole plasma inside a strong magnetic field. For this, the following model was used: it is assumed that the electron and hole spectrum with no magnetic field is quadratic and isotropic and imposes no limits on the relationship between the masses and concentrations of the carriers. With these as well as several other conditions satisfied, only the intravalley transitions are taken into account. It is shown that solutions exist near the Doppler-shifted electron and hole cyclotron resonances and that the magnetic quantization causes the appearance of the transmission portions in which the waves can be propagated without attenuation. Finally, it is found that excitations with polarizations opposed to those of a helicon and with a frequency proportional to the difference in concentrations exist in an uncompensated plasma. The authors are associated with the N. I. Lobachevskiy State University at Gor'kiy.

Acc. Nr: AP0043689 DEMIKHOVSKIY, V. Ya.
Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 651-656

INTERACTION BETWEEN OPTICAL PHONONS AND ELECTRONS IN A QUANTIZED MAGNETIC FIELD

Demikhovskiy, V. Ya.; Protogenov, A. P.

The dispersion law for longitudinal optical phonons interacting with electrons in a quantized magnetic field is studied. An analysis of the conservation laws shows that in the presence of magnetic quantization in the (ω, q) plane there appear additional sections in which Landau attenuation is absent. Dispersion curves in the region $q \ll \omega / v_0$ and $q \gg 2k_0$ are found. It is demonstrated that in the set under consideration there exist solutions of the acoustic type which are analogous to acoustic plasmons.

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DEMIN A. G.
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transuranium elements

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18 Jan 73

transuranium elements

IN THE COMMITTEE FOR INVENTIONS AND DISCOVERIES
UNDER THE COUNCIL OF MINISTERS USSR

[Announcement; Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 42, No 11, November 1972, pp 132-133]

The Committee has registered the following scientific discoveries:

G. N. FLEROV, YU. TS. OGANESYAN, YU. V. LOBANOV, YU. A. LAZAREV, Czechoslovak citizen J. ZVARA, V. Z. BELOV, V. A. DRUIN, A. G. DEMIN AND YU. P. KHARITONOV.

"ELEMENT NO. 105 OF MENDELEYEV'S PERIODIC SYSTEM"

Formulation of the discovery: Experimentally established was the previously unknown phenomenon of formation of a chemical element with the ordinal number 105. An isotope of that element with a half-life $T_{1/2} \approx 2$ seconds was obtained during the irradiation of americium with neon nuclei.

Priority of discovery -- 18 February 1970.

Certificate No. 114. Application No. OT-7896.

The data obtained by the authors of the discovery are of great scientific importance, as they show a divergence of the experimentally determined radioactive properties of element No. 105 from the previously predicted theoretically on the basis of known semi-empirical laws and require revision of the latter. The new experimental data relating to the synthesis of element No. 105 indicate a real possibility of the detection of heavier chemical elements in nuclear reactions, for example, No. 106, and permit much more confidently predicting the properties of those elements.

USSR

UDC 621.375.82

DEMIN, A. I., KUDRYAVTSEV, Ye. M., SOBOLEV, N. N., FAYZULAYEV, V. N.

"Gasdynamic Laser With a High Water Vapor Content"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 3, Moscow, "Sov. radio", 1972, pp 72-73 (from RZh-Fizika, No 1, Jan 73, Abstract No 1D928)

Translation: A gasdynamic laser using a CO_2-H_2O-N_2 mixture heated by a reflected shock wave is investigated. The mixture flowed through a slit. The parameters of the gas mixture heated by the shock wave were: T = 1300--2250°K, p = 5-88 atm. The laser amplification for a high water content in the working mixture was investigated (the magnitude of $[H_2O]$ was comparable with $[CO_2]$). An electric discharge CO_2 laser was used as probing radiation. Amplification was observed up to $[H_2O]/[CO_2]$ = 1 for $[N_2]/[CO_2]$ = 4, T = = 2250°K, p = 22 atm. Maximum amplification in this case was observed at a distance of 22 mm from the slit and amounted to $0.4 \cdot 10^{-2}$ cm^{-1}. Authors' abstract.

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USSR UDC 617-001.34-085.273.53

DEMIN, A. A., KHRUPINA, A. Ya., and VASILENKO, G. P., Novosibirsk Medical Institute

"Heparin Treatment of Vibration Sickness"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 16-20

Abstract: Following the observation of hypercoagulation and deficiency of free blood heparin in 155 patients with vibration sickness, the authors decided to treat 50 of them with heparin: 44 by electrophoresis in the wrists (12 to 15 procedures, 10 to 20,000 units), 3 by intravenous injection (10,000 units daily), and 3 by subcutaneous injection (5000 units 2 to 4 times daily, 5000 units each time). Forty-three patients showed marked improvement. Paresthesia and numbness disappeared after 3 or 4 procedures, pain in the wrists and stiffness in the joints diminished while muscular strength increased after 5 or 6 procedures. Pain and paresthesia ceased completely, cyanosis, headaches, and wrist weakness diminished after the conclusion of the course of treatments. Pallesthesimetry, dynamometry, oscillography, capillaroscopy, etc., produced objective evidence of the efficacy of heparin.
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Graphite

USSR UDC 621.3.035.2

GOLOVINA, YE. S., SHIPKOV, N. M., KOTOVA, L. I., PERKOVA, G. A., DEMIN, A. V., and RAKCHEYEVA, V. I.

"Reactivity of Graphite With Titanium and Silicon Additives"

Tsvetnyye Metally, No 3, Mar 71, pp 59-62

Abstract: The reactivity of graphite with added titanium (0-10%) and silicon (3 wt %) was studied in an active gas medium at high temperatures (2500 and 3000°K). It was established that the introduction of silicon alone, facilitating the technological process, only slightly increases the resistance of graphite in the active medium. The combined introduction of titanium and silicon significantly reduced the reactivity of the graphite.

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Graphite

USSR UDC 621.3.035.2

GOLOVINA, YE. S., SHIPKOV, N. M., KOTOVA, L. I., PERKOVA, G. A., DEMIN, A. V., and RAKCHEYEVA, V. I.

"Reactivity of Graphite With Titanium and Silicon Additives"

Tsvetnyye Metally, No 3, Mar 71, pp 59-62

Abstract: The reactivity of graphite with added titanium (0-10%) and silicon (3 wt %) was studied in an active gas medium at high temperatures (2500 and 3000°K). It was established that the introduction of silicon alone, facilitating the technological process, only slightly increases the resistance of graphite in the active medium. The combined introduction of titanium and silicon significantly reduced the reactivity of the graphite.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200620013-5"

USSR

UDC 669.71:472:621.035

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA, N. A., and SHIPKOV, N. N.

"Manufacture of Roasted Anodes for Aluminum Electrolyzers by the Method of Combined Pressing and Roasting"

V sb. Konstrukts. materialy na osnove grafita (Graphite-Base Construction Materials -- Collection of Works), No 6, Moscow, "Metallurgiya" (Metallurgy), 1971, pp 10-13 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G131 by G. Svodtseva)

Translation of Abstract: The results of tests with experimental specimens showed that the method of combined pressing and roasting makes it possible to obtain roasted anodes with elevated physicomechanical and operational characteristics from various raw materials.

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USSR

UDC 621.357.1:669.713.72

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA, N. A., SHIPKOV, N. N.

"Manufacture of Annealed Anodes for Aluminum Electrolyzers by Combined Pressing and Annealing"

Konstrukts. Materialy na Osnove Grapfita [Graphite-Based Structural Materials -- Collection of Works], Moscow, Metallurgiya Press, No 6, 1971, pp 10-13 (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 L309 from the Resume).

Translation: The possibility is demonstrated of using the method of combined pressing and sintering for the preparation of prismatic specimens of sintered anodes based on various raw materials: type KNPE petroleum coke mixed with pitch, shale, and also individually of non-roasted pitch coke. The properties of the anodes produced are compared with those of anodes type DEZ, anodes from companies in the GDR, FRG and Switzerland, tested under similar conditions. The results indicate that manufacture of anodes by combined pressing and sintering produces anodes with lower oxidizability, subject to considerably less damage upon interaction with CO_2, with compact structure.

1/1

Graphite

USSR UDC: 621.3.035.2

LUTKOV, A. I., VOLGA, V. I., DYMOV, B. K., DEMIN, A. V., RAKCHEYEVA, V. I., and PERKOVA, G. A.

"Investigating the Effect of Refractory Elements on the Thermal and Electrical Conductivity of Graphite"

Moscow, Tsvetnyye Metally, No 8, Aug 70, pp 48-51

Abstract: The recent development of a method for graphite production involving thermomechanical processing under pressure has led to the diffusion of contaminants in the graphite. These contaminants react with the carbon to produce materials whose thermal and electrical conductivity characteristics are very sensitive to crystal structural defects caused by the contaminants. The purpose of this article was to investigate graphite obtained by this thermomechanical processing of coke into which refractory elements such as Ti, Si, Zr, and B, were introduced. The procedure for measuring the thermal and electrical conductivity in the temperature interval of 80-2500° K is the same as that used in an earlier paper written by the first-named of the authors above, in collaboration with others (Collection "Konstruktsionnyye materialy

USSR

LUTKOV, A. I., et al., Tsvetnyye Metally, No 8, Aug 70, pp 48-51

na osnove grafita" -- Structural Materials Based on Graphite -- 4th edition, published by "Metallurgiya," 1965, p 59). A brief description of the thermomechanical procedure is given. The authors found that the heightening of the material's plasticity, the result of the interaction between the carbon and these refractory elements, affects the properties of the product. They found also that boron, which is a close neighbor of carbon in the periodic table and has a practically equal atomic radius, can replace the carbon in the graphite lattice. It was noted that the presence of boron promotes the graphitization process. Curves of the thermal and electrical conductivity of the graphite as functions of the temperature in the graphitization furnace, for various concentrations of the refractory elements, are given.

2/2

USSR

UDC 549.212

KOTOSONOV, A. S., DEMIN, A. V., POLOZHIKHIN, A. I., NIKOL'SKIY, I. F., and RAKCHEYEVA, V. I.

"Effect of Boron on Some Physical Characteristics of Artificial Graphites"

Moscow, Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

Abstract: The authors studied the effect of boron, introduced into the initial raw material (0.01-5.0 wt. percent), on some physical characteristics of graphite materials based on calcined petroleum coke, prepared by the thermomechanical treatment method. The attempt was also made to estimate the amount of boron dissolved in the graphite lattice and to establish the interrelationship between the amount of dissolved boron and the total content thereof, on the one hand, and certain physical properties of graphite, on the other. Specific electrical resistivity, magnetic resistance, Hall constant, X-ray diffraction parameters, compression strength and residual boron content were

USSR

KOTOSONOV, A. S., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

measured on specimens, as well as relative deformation during thermomechanical treatment.

There was found to be an increase in the deformation of specimens during thermomechanical treatment and the density and mechanical strength of the material with an increase in the boron content. The structure of boronized graphite is characterized by increased crystallite size and reduced interlayer distance. The electron properties of the graphite depend mainly on the amount of boron dissolved in the lattice and replacing some of the carbon atoms.

It is shown on the basis of an analysis of the Hall constant that the limiting solubility of boron is limited to 1 percent with re-

USSR

KOTOSONOV, A. S., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

spect to the ordered part of carbon. The rest of the boron is localized between the graphite crystallites in the form of carbide compounds. It is assumed that the increased strength of the graphite is due to the carbide phase of boron.

1/2 057 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--NEW CLASS OF SYNTHETIC GRAPHITES -U-

AUTHOR-(04)-DEMIN, A.V., RAKCHEYEVA, V.I., PERKOVA, G.A., SHIPKOV, N.N.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(4), 61-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS, PHYSICS

TOPIC TAGS--CHEMICAL SYNTHESIS, GRAPHITE, SEMICONDUCTOR MATERIAL, ANISOTROPY, CHEMICAL COMPOSITION, TITANIUM, SILICON, BORON, ZIRCONIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1251 STEP NO--UR/0136/70/043/004/0061/0062

CIRC ACCESSION NO--AP0134925

UNCLASSIFIED

2/2 057 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134925

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW TYPE OF SYNTHETIC GRAPHITE WAS DEVELOPED. THE MATERIALS (GRAPHITE PLUS TI, ZR, SI, B, ETC., UP TO 10 WT. PERCENT) ARE PRESSURE TREATED ABOVE 2000DEGREES. IN ALL PHYS. CHARACTERISTICS THE NEW TYPE OF SYNTHETIC GRAPHITES DIFFERS FROM KNOWN GRAPHITE MATERIALS, E.G., THE STRENGTH OF THESE MATERIALS IS HIGHER BY A FACTOR OF 2-3. THE POSSIBILITY OF CHANGING THE THERMAL COND. IN THE WIDE RANGE (FROM 35-40 FOR USUAL GRAPHITES TO 300 KCAL PER M HR DEGREE FOR CU) IS A UNIQUE PROPERTY OF THESE MATERIALS. THE NEW GRAPHITES SHOW ANISOTROPY ALSO. THESE NEW GRAPHITES HAVE APPLICATIONS AS MATERIALS FOR SEMICONDUCTOR AND HIGH TEMP. TECHNIQUES.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SELECTION OF THE DESIGN AND OPERATING PRACTICE FOR OXYGEN LANCES -U-

AUTHOR-(05)-GLINKOV, M.A., DEMIN, G.I., PERMINOV, E.M., CHUKHANOV, Z.F., KHMELEVSKAYA, E.D.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30-(2), 119-23

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--OXYGEN, OPEN HEARTH FURNACE, NOZZLE, ABSORPTION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0214 STEP NO--UR/0133/70/030/002/0119/0123

CIRC ACCESSION NO--AP0115918

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115918

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF CHEM. AND HEAT ABSORPTION AS A FUNCTION OF THE DEGREE OF LANCE INCLINATION TO OPEN HEARTH BATH WAS DETD. ON MODELS, IN WHICH ABSORPTION OF NH SUB3 IN WATER FROM ITS MIXT. WITH AIR WAS MEASURED AND THAT OF HEAT SUPPLIED BY HOT AIR TO AN OIL BATH WAS EVALUATED. THE ABSORPTION COEFF. FOR A SPECIFIC RANGE OF OPTIMUM GAS CONSUMPTION, WHICH INCREASES WITH A LARGE NOZZLE DIAM., REACHES ITS MAX. VALUE WITH VERTICAL NOZZLES. NO LOWERING OF THE ABSORPTION COEFF. AFTER REACHING ITS OPTIMUM VALUE WAS NOTED FOR NOZZLES INCLINED 30-75DEGREES TO THE VERTICAL. GAS CONSUMPTION AND NOZZLE DIAM. ARE ASSOCD. BY THE ARCHIMEDES CRITERION AR (AR EQUALS W PRIME2 GAMMA G-GD GAMMA L). THE MAX. ABSORPTION IS OBTAINED WITH AR 100, AND ABSORPTION COEFF. N CAN BE GIVEN WITHIN 5PERCENT AS N EQUALS 0.96-(AR PLUS 4.55). FOR A GROUP OF NOZZLES SUFFICIENTLY DISTANT (SIMILAR TO 10 DIAM. MIN.) IT IS ABOUT THE SAME FOR A GROUP OR INDIVIDUAL NOZZ.E THE ANGLE OF NOZZLE INCLINATION TO THE VERTICAL AFFECTS BOTH THE RATE OF ABSORPTION AND THE DEGREE OF STIRRING, THE OPTIMUM FOR THE PURPOSE BEING 55DEGREES FOR CLOSELY PLACED NOZZLES AND 45DEGREES FOR MORE DISTANT ONES. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 612.822:612.821.7

DEMIN, N. N., Institute of Physiology imeni I. P. Pavlov, USSR Academy of Sciences, Leningrad

"Biochemical Changes in the Different Regions of the Brain During Natural Sleep and Its Disturbances"

Moscow, Uspekhi Sovremennoy Biologii, Vol 76, No 1(4), Jul/Aug 73, pp 132-144

Abstract: During the past 15 years great progress has been made in understanding the physiological and biochemical basis of sleep. One of the most important advances was the recognition of REM sleep and the various factors which affect it, such as the norepinephrine:serotonin ratio. In addition, studies on REM sleep also demonstrated the connection between bioelectric activity of the brain and RNA biosynthesis (deprivation of REM sleep leads to depressed RNA and DNA levels in the cerebral cortex). The most significant neurochemical events during sleep occur in the brain stem and involve reparative processes of high molecular weight substances such as proteins and RNA, and not the accumulation of high energy stores as previously supposed, to compensate for wear and tear attrition.
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USSR

UDC 612.822.2-06:612.821.7

GRUSHCHENKO, T. S., and DEMIN, N. N., Laboratory of Functional Neurochemistry, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"Biogenic Amine Mediators and Proteinase Activity in Various Portions of Rat Brain During Normal Sleep and Sleep Without the Paradoxical Phase"

Moscow, Voprosy Meditsinskoy Khimii, Vol 19, No 2, Mar/Apr 73, pp 181-186

Abstract: Reserpine given in an intraperitoneal dose of 5 mg/kg does not change the activity of neutral and acid proteinases in the gray and white matter of the hemispheres, brain stem, and cerebellum of rats. During natural sleep, proteolytic activity decreases in the hemispheres and mesencephalon but increases in the cerebellum. After 24 hrs of deprivation of the paradoxical phase of sleep (PPS), inhibition of proteinases in the hemisphere and mesencephalon is more pronounced, while in the cerebellum the activity of neutral proteinases is increased and that of acid proteinases decreased. Twenty-four hrs after administration of nialamide (50 mg/kg), acid proteinases are activated in all portions of the brain, while neutral proteinases are also activated in the hemispheres. In animals sleeping after nialamide injection, acid proteinase activity remains high, and neutral proteinase activity also increases in the mesencephalon and cerebellum. After deprivation of the PPS, proteinase

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USSR

GRUSHCHENKO, T. S. and DEMIN, N. N., Voprosy Meditsinskoy Khimii, Vol 19, No 2, Mar/Apr 73, pp 181-186

activity is just as elevated as during normal sleep, while the activity of neutral proteinases in the white matter of the hemispheres is somewhat reduced. Accumulation of endogenous acetylcholine after administration of armin does not change proteinase activity during wakefulness and natural sleep but reduces it somewhat in the mesencephalon after deprivation of the PPS. In vitro, in a concentration of 10^{-5}, acetylcholine affects neither acid nor neutral proteinase activity. The changes in proteinase activity taking place in the various portions of the rat brain during normal and disturbed sleep are modified by altered concentration of endogenous catecholamines and serotonin.

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USSR

UDC 577.1:547.963.3:612.8.015

VORONKA, G. Sh., DEMIN, N. N., RUBINSKAYA, N. L., and SOLOV'YEVA, I. A., Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"RNA Content of Neurons and Their Glial Satellite Cells in the Supraoptic Nucleus of Rats During Natural Sleep, Deprivation of the REM Phase, and Amphetamine Insomnia"

Kiev, Ukrains'kiy Biokhimichniy Zhurnal, No 6, 1972, pp 712-717

Abstract: During natural sleep the RNA concentration in the cytoplasm of neurons in the supraoptic nucleus of the hypothalamus and in the glial satellite cells remains virtually unchanged. In rats deprived of REM sleep, the RNA concentration in the neurons likewise scarcely changes but increases markedly in the neuroglia. However, the absolute RNA content decreases in the neurons (especially after the first day) while remaining unchanged in the surrounding neuroglia. Insomnia induced by amphetamine injections reduced the absolute RNA content in all the cells, but does not alter the RNA concentration. During sleep after partial and complete 96 hours' insomnia, the RNA content remains low in the neurons but returns to the normal level in the neuroglia.

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USSR

UDC 591.152:612.8.015

BRUMBERG, V. A., GAZENKO, O. G., Corresponding Member of the USSR Academy of Sciences, DEMIN, N. N., MALKIN, V. B., NEVZNER, L. Z., Physiology Institute imeni I. P. Pavlov of the USSR Academy of Sciences, Leningrad

"Topochemical Differences in the DNA Content in the Motoneurons of the Spinal Cord in the Case of Hypoxia and Hypokinesia"

Moscow, Doklady Akademii nauk SSSR, 1972, Vol 205, No 6, pp 1490-1493

Abstract: The reactions of the motoneurons of the cervical and lumbar enlargements of the spinal cord, that is, neurons which are similar morphologically and with respect to the neuromediator participating in their functional activity but different with respect to the group of muscles innervated by them, to hypoxia and hypokinesia were compared. A highly important fact in the experiments is that the motoneurons of the cervical enlargement innervate the diaphragm and the musculus intercostalis which play a significant role in the regulation of the respiration. Hyperventilation during hypoxia and some reduction in ventilation during hypokinesia essentially distinguish these two states. The experiment was performed on mature white male rats weighing 100± 20 grams divided into four groups: 1) one group in a pressure chamber at an "altitude" of 3,000 meters initially and then daily for 7 days raised by 500 to 1,000 meters and then held for 14 days at an "altitude" of 7,000 meters with daily

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200620013-5"

USSR

BRUMBERG, V. A., et al., Doklady Akademii nauk SSSR, 1972, Vol 205, No 6, pp 1490-1493

exposure for 6 hours under rarefied atmospheric conditions; 2) a second group subjected to prolonged forced hypokinesis by placing them for 20 days in small pencil-box cells significantly limiting the possible movements; 3) a third group subjected to the combined effect of hypoxia and hypokinesis for which the animals enclosed in the pen-box cells were placed in the pressure chamber and held under the same hypoxia conditions as the rats in the first group. There was a fourth control group. The decapitation and preparation procedures are described, and data are tabulated on the concentration of cytoplasmic DNA, the volume of cytoplasm and the absolute amount of cytoplasmic DNA in the motoneurons of the anterior horns of the cervical and lumbar enlargements of the spinal column in the presence of hypoxia and hypokinesis. The data indicate different natures of the hypoxic and hypokinetic forms of stress. Hypoxia affects primarily the group of motoneurons which innervates the respiratory musculature, and hypokinesis, and musculature innervating the lower extremities. Neither effect changes the amount of DNA in the neurons of the first group but they both have a similar effect (an increase) on the amount of DNA in the neurons of the second group. An explanation of the possible mechanism of these effects is given.
2/2

USSR

VORONKA, G. Sh., DEMIN, N. N., and PEVZNER, L. Z., Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"Total Proteins and Content of Simple Proteins in the Neurons and Neuroglia of the Supraoptic and Red Nuclei in Rats During Natural Sleep and After Deprivation of the Paradoxical Phase of Sleep"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 4, 1971, pp 974-977

Abstract: In rats, natural sleep resulted in the accumulation of total proteins and especially of simple proteins in the neuroglial cells of the supraoptic nucleus of the hypothalamus and of simple proteins in the neurons of this nucleus. In the red nucleus, however, total proteins decreased both in the neuroglia and especially in the neurons, while the content of simple proteins increased only slightly in the glial cells but remained virtually unchanged in the neurons. Insomnia for 24 hours resulted in a sharp decrease in total proteins in the neurons followed by a slight increase, while total proteins in the neuroglia decreased slightly. The simple proteins decreased only in the neurons of this nucleus but remained unchanged in the glial cells. Deprivation of the paradoxical phase of sleep caused a rapid decrease in total proteins in the red nucleus, but the decrease was smaller in the neurons of
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USSR

VORONKA, G. Sh., et al., Doklady Akademii Nauk SSSR, Vol 198, No 4, 1971, pp 974-977

this nucleus than in the supraoptic nucleus and there was no subsequent increase. Thus, natural sleep as well as the paradoxical phase of sleep stimulate protein synthesis, whereas deprivation of paradoxical sleep (insomnia), a stress factor, reduces the protein content of the supraoptic nucleus, chiefly in the neurons, although some adaptation takes place.

2/2

The following are identified as authors of articles in the journals indicated:

Za rulem

GRACHEV, S., Maj Gen, Deputy Chairman of the Central Committee of DOSAAF.

Radio

DEMIN, N. S., Lt Gen, Hero of the Soviet Union, First Deputy Chairman of the Central Committee of DOSAAF of the USSR.

Kryl'ya Rodiny

REBROV, M., Engr-Lt Col,
NALIVAYKO, B., Maj,
KATRICH, A., Col Gen Avn, Hero of the Soviet Union, Commander of Aviation of GSFG, Honored Military Pilot of the USSR,
MAMAYEV, A., Col.

Sovetskiy Patriot, 24 Dec 72, p 4, col 7

USSR UDC 51

DEMIN, V. K.

"Combat Dynamics: Deterministic and Probability Models"

V sb. Issled. operatsiv. Modeli, sistemy, resheniya. Vyp. 3 (Operations Research. Models, Systems, Solutions. Vyp. 3 -- collection of works), Moscow, 1972, pp 169-181 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V553)

Translation: A study is made of the relation between the deterministic and probability models of combat. An effort has been made to estimate the region of their coincidence. Approximate equations corresponding to the probability picture of combat are obtained for the quadratic Lanchester model.

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USSR

UDC 519.2:62-19

BASKIN, E. M. and DEMIN, V. M.

"Evaluations of the Reliability Characteristics of Systems Using a Small Number of Tests"

Tr. VNII elektromekh. (Transactions of the All-Union Scientific Research Institute of Electromechanical Engineering), No 33, 1970, pp 135-148 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V287, by Ya. Lumel'skiy)

Translation: A method of arriving at evaluations for the distribution functions $\Phi(x)$ by expansion according to a system of orthogonal Laguerre polynomials with parameter λ_p is examined.

A study is made of a class S of distributions for which λ is the characteristic

$$\lambda(x)=\frac{f(x)}{1-\Phi(x)}$$

and as $x \longrightarrow \infty$ this expression has the limit $\lambda(\infty) \neq 0$. This

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USSR

BASKIN, E. M. and DEMIN, V. M., Tr. VNII Elektromekh, No 33, 1970, pp 135-148

class of distribution S includes the class of laws for obsolescence. Sufficient conditions for the expandibility of the distribution density for different subclasses of the class S are obtained. The second part of the article states the possibility of employing these expansions to approximate a distribution function by sampling characteristics.

2/2

USSR

UDC 621.375.8

KRIVCHIKOVA, E. P., DEMIN, V. S.

"Use of Laser for Atomic Absorption Analysis"

Minsk, Zhurnal Prikladnoy Spektroskopii, No 4, Apr 71, pp 592-596.

Abstract: The authors studied the spectra of ruby, alundum and high-chrome steel alloyed with manganese, nickel and silicon by spectrography of the plasma streams formed upon application of a pulse of laser light. The spectra consisted of a continuous background, against which the absorption and emission lines could be seen. The absorption lines primarily belong to neutral and singly ionized atoms with excitation energies of 5-7 eV. In the steel, manganese, nickel and silicon were determined in the 0.1-1% concentration interval, chromium -- in the 9-17% concentration interval.

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USSR

UDC 654.924

BORISOV, B. K., DEMIN, YU. I., KURAPOV, YE. F.

"Alarm Signal Device"

USSR Author's Certificate No 310278, filed 17 Nov 69, published 20 Sep 71 (from RZh --Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A483P)

Translation: An alarm signaling device is proposed which contains alarm signal sensors connected via a communication line to the central apparatus for signal reception from the sensors. For simplification, the device is equipped with an oscillator the controlling input of which is connected to the output of the central apparatus; and the output, to the communication line to which the sound indicator shunted by a breaker switch is connected in series. The communication line between the sound indicator and the sensors is shunted by a diode included in the return direction. There is 1 illustration.

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1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CYTOGENETIC ANALYSIS OF AN IMMUNOCOMPETENT STRAIN OF RABBIT SPLEEN CELLS -U-

AUTHOR-(02)-SAFRONOVA, L.O., DEMIN, YU.S.

COUNTRY OF INFO--USSR

SOURCE--GENETIKA 6(1): 70-77. ILLUS. 1970

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNOLOGY, RABBIT, SPLEEN, CELL CULTURE, CHROMOSOME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0311 STEP NO--UR/0473/70/006/001/0070/0077

CIRC ACCESSION NO--AP0135806

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135806

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METAPHASE PLATES OF IMMUNOCOMPETENT CELL CULTURES WERE STUDIED. ABOUT 83.4PERCENT OF ALL CELLS HAD THE DIPLOID SET OF CHROMOSOMES (2N EQUALS 44), 1.3PERCENT WERE HYPERDIPLOID, 8.9PERCENT WERE HYPODIPLOID AND 6.4PERCENT WERE TETRAPLOID. ONE CHROMOSOMAL ABERRATION WAS FOUND. ON 19 METAPHASE PLATES WITH 44 CHROMOSOMES, ALL WERE TRUE DIPLOIDS. NINE WERE MEASURED ON PHOTOMICROGRAPHS AND THE RESULTS WERE ANALYSED STATISTICALLY. THE RESULTS OBTAINED AGREE WITH DATA PUBLISHED ELSEWHERE ON RABBIT CELLS IN VIVO. FACILITY: INST. DEVELOP. BIOL., ACAD. SCI. USSR, MOSCOW, USSR.

UNCLASSIFIED

1/2 045 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THE STRUCTURE OF A SHOCK WAVE IN AN EMITTING GAS -U-

AUTHOR--DEMINA, B.G.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 1, MATEMATIKA, MEKHANIKA, ASTRONOMIYA, 1970, NR 1, PP 98-102
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHOCK WAVE STRUCTURE, RADIATIVE HEAT TRANSFER, ASYMPTVTIC SULUTION, SHOCK WAVE HEATING, EMISSION SPECTRUM, ABSORPTION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0390 STEP NO--UR/0043/70/000/000/0098/0102

CIRC ACCESSION NO--AP0055175

UNCLASSIFIED

2/2 045 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0055175

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER DEALS WITH THE HEAT EXCHANGE BY RADIATION IN A SHOCK WAVE. THE WAY THE PROBLEM IS PUT CORRESPONDS TO THE WORKS (2), (3). THE RADIATION ANYSOTROPY IS STRICTLY TAKEN INTO ACCOUNT. ASYMPTOTIC EXACT LAWS FOR SMOOTHING OUT THE PROFILES OF HYDRODYNAMICS PARAMETERS AND THE STREAM OF RADIATION FOR THE HIGHLY GENERAL FORMS OF THE SPECTRUM DEPENDENCE OF COEFFICIENT OF ABSORPTION ARE DETERMINED.

UNCLASSIFIED

USSR

UDC 669-419.4:669.71:669.14

FISHKIS, E. YA., KERSHENBAUM, V. YA., and DEMINA, E. L.

"Composition and Properties of the Transition Layers in Aluminum Alloy-Steel Bimetals Produced by Friction Surfacing"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 74, pp 70-71

Abstract: Results are presented from an investigation into the aeffect of different technological modes of hard surfacing as well as cooling rate on composition, structure and thickness of the transition zone. Studies were made on bimetals of antifriction aluminum alloys of the Al-Sb system and steels 10 and 45. The velocity, pressure applied, time at temperature for diffusion processes to occur, and cooling rate are ths ignificant factors in friction surfacing for producing the best bimetallic joint. These factors also have an effect on the thickness of the clad layer and transition zone. From tests of bimetal ASS 6-5 + steel 10 and ASS 6-5 + steel 45 it was determined that the stronger bimetal can be produced at a surfacing velocity of 1.2 m/sec, P = 2 kgf/mm^2, time of 45 seconds and water cooling. This mode produces a transition-zone thickness of 1-10 microns with the better bimetallic joint made using ASS 6-5 + steel 45, although shear tests showed that rupture occurs in the surfacing layer (ASS 6-5). Four figures.

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USSR

UDC 621.771+791

FISHKIS, E. YA., DEMINA, E. L., KERSHENBAUM, V. YA., and SHREYBER, G. K., Moscow

"A New Process for Preparing an Aluminum-Steel Bimetal"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul/Aug 72, pp 119-122

Abstract: Friction fusing was considered as a possible preparation process for an aluminum-steel alloy. It was shown that in the zone of contact, a migrating layer was formed, the thickness of which was determined by the technological parameters of the fusion process. The most stable compound of steel with aluminum or with an aluminum alloy was obtained when the thickness of this layer was on the order of 1-3 μ. A reliable friction fusion system for producing these alloys is explained.

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USSR

UDC 621.382.3

GORYUNOV, N.N., DEMINA, G.K., ITKIN, B.YA., MOSTOVLYANSKIY, N.S.

"Investigation Of Transistors Rejected During Tests Under An Electrical Load"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, No 1(51), pp 106-115 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B177)

Translation: On the basis of an analysis of the overall rejections (breakdowns) of Type P605-P606 conversion Ge transistors of average power, the weak spots in the transistor structure developed during tests under an electrical load is where formation of a short circuit is most probable. It is shown that breakdowns of the emitter-collector junction originate with a decrease of the distance from the emitter to the groove [kanavka]; an acute angle of the emitter (and consequently of the collector junction) in the interior of the crystal at the ends of the emitter strip increases the intensity of the electrical field in the area of the space charge of the collector, which also can lead to a breakdown; and a breakdown of the base-collector develops in the area of increased intensity of the field and at points of mechanical defects. Several other causes of breakdowns are considered. 8 ill. 2 ref.

1/1

USSR

GUZ', I. S., DEMINA, G. S., KOROBOV, Yu. M.

"Interaction of Elastic Waves with the Boundary in a Bicrystal"

VII Vses. Konf. po Polyarizats.-optich. Metodu Issled. Napryazh., 1971, T. 3 [VII S11-Union Conference on Polarization-optical Method of Studying Stresses, 1971, Vol 3 -- Collection of Works], Tallin, 1971, pp 171-172, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V135 by Kh. K. Aben).

Translation: The method of dynamic photoelasticity, in combination with selective etching, is used to study the distribution of dynamic stresses in the zone of a boundary in materials with crystalline structure. Studies were performed on flat specimens of bicrystals of lithium fluoride having low-angle (less than 5°) and broad-angle (over 10°) disorientation. A photoelastic coating 0.1 mm thick was applied to one face of the crystal. The stress wave was excited by a micro-explosion of lead azide and sent through a waveguide to the end of the specimen. A cinegram of the interaction of the stress wave with the boundary, produced at 720,000 frames per second, is presented. The study performed shows that a great portion of the energy is reflected from the boundary, while significantly less passes through to the second crystallite.

1/2

USSR

GUZ', I. S., DEMINA, G. S., KOROBOV, Yu. M., VII Vses. Konf. po Polyarizats.-optich. Metodu Issled. Napryazh., 1971, T. 3., Tallin, 1971, pp 171-172.

This agrees well with the results produced by selective etching. The dislocation density is found to be significantly higher in the crystallite in which the wave is reflected.

2/2

USSR

UDC 669:26.053.4(088.8)

POPIL'SKIY, M. Ya., KISIL', Yu. K., and DEMINA, L. R.

"Method of Making Calcium Chromate"

USSR Authors' Certificate No 305136, Cl. C 01 g 37/14, filed 13 Feb 70, published 14 Jul 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G212P by G. Svodtseva)

Translation of Abstract: The method of obtaining $CaCrO_7$ from a solution of $Na_2Cr_2O_7$, $Ca(OH)_2$ and $CaCl_2$ with subsequent separation of $CaCrO_7$ from the mother liquor is unique in that, in order to decrease the content of harmful impurities in the product, $Na_2Cr_2O_7$ is decomposed with $CaCl_2$ at a temperature $\leq 60°$ with subsequent treatment of the resultant $CaCr_2O_7$ with Ca hydroxide at pH ≤ 6.5. In order to raise the Cr and Ca content of the intended product, the mother liquor is acidulated with H_2SO_4, HCl or chromic acid up to pH ≤ 4.5, evaporated to partial precipitation of NaCl crystals, and returned to the $Na_2Cr_2O_7$ decomposition stage. The method makes it possible to produce $CaCrO_7$ with minimal impurity content: C 0.01%, S 0.04%, as well as to raise the Cr and Ca content of the product (CrO_3 63.8%, CaO 34.8%).

1/1

10

USSR

UDC 616.993.162-022.39-084.47-036.8

SERGIYEV, P. G., BEYSLEKHEM, R. I., MOSHKOVSKIY, Sh. D., DEMINA, N. A., KELLINA, O. I., SHUYKINA, E. Ye., SERGIYEV, V. P., DUKHANINA, N. N., TRIYERS, I. I., SHCHERBAKOV, V. A., YARMUKHAMEDOV, M. A., USKOV, N. Ye., LOSIKOV, I. N., and NEDOSPELOVA, Ye. I., Institute of Medical Parasitology and Tropical Medicine imeni Ye I. Martsinovskiy, Ministry of Health USSR, Moscow

"Results of Mass Vaccinations against Zoonotic Cutaneous Leishmaniasis"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5, Sep/Oct 70, pp 541-551

Abstract: Preventive mass vaccinations with a virulent strain of Leishmania tropica major were found to give reliable protection against cutaneous leishmaniasis. Only virulent strains can be used for vaccination. The degree of inoculation with such strains is almost 100%, the inoculative process having, as a rule, a favorable effect. The maximum size of the vaccination lesion does not exceed 2 cm in diameter in 3/4 of the subjects vaccinated. In practically all cases, the process does not last more than 5-6 months. Morbidity occurred in the group vaccinated with the low-virulence strain, among those without lesions, and among those whose lesions were less than 0.5 cm in diameter.

1/2

USSR

SERGIYEV, P. G., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5, Sep/Oct 70, pp 541-551

Secondary pyococcal infections represented the only complications observed; allergic exanthem was noted occassionally. In order to prevent local and general allergic reactions after vaccination, it is necessary to exclude persons who have had cutaneous leishmaniasis. If past disease cannot be revealed by means of anamnesis or medical examination, the intracutaneous leishmanin test is recommended. The level of the virulence in inoculative strains should be periodically tested, since insignificant initial virulence or its weakening during culturing make a given strain unfit for preparation of inoculum.

2/2

USSR

UDC: 621.397:621.396.61

DALINENKO, N. K., YEFREMOV, V. A., DEMINA, N. F., KRUPCHATNIKOV, V. A., SURIKOV, I. N.

"A Method of Objective Measurement of the Noises and Signal From Fine Details of Images of the Dissectors in the Small-Frame Scanning Mode"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektronnoluch. i fotoelektr. pribory (Electronic Technology. Scientific and Technical Collection. Electron-Beam and Photoelectric Devices), 1970, vyp. 4(18), pp 40-46 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G113)

Translation: The authors discuss an objective method of measuring the signal-to-noise ratio and depth of modulation of the signals of fine details in an image in cameras with dissectors in the small-frame scanning mode. The characteristics of the equipment developed are presented together with the results of measurements made by the proposed method. Resumé.

1/1

USSR

UDC 669.75.472

BULDAKOV, A. A., ROZLOVSKIY, A. A., VRATSKAYA, G. F., DEMINA, Yu. V.

"Resistance of Refractory Materials in Antimony-Salt Solutions"

Elektrokhim. Rafinirovaniye Tyazh. Legkoplavk. Met. iz Rasplavl. Soley. [Electrochemical Refining of Heavy Low-Melting Metals from Fused Salts -- Collection of Works], Kiev, Nauk. Dumka Press, 1971, pp 169-172, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G424 by the author's).

Translation: The corrosion resistance of structural materials in type SU-2 Sb melt and an equimolar mixture of NaCl + KCl is studied. The following technical refractories were tested: pure oxides, ceramic construction materials, oxygen-free compounds, sïtalls, and heat-resistant concrete. The resistance of the materials was determined from the change in weight of a specimen following repeated immersion in the melt and long holding. Pure materials of the oxides Al_2O_3, MgO, and ZrO_2 are recommended. 2 Tables.

1/1

USSR

UDC 612.84

DANILOV, V. I., DEMIRCHOGLYAN, G. G., AVETICYAN, Z. A., ALLAKHVERDYAN, M. A., GRIGORYAN, Sh. V., and SAVERIGYAN, G. Kh., Laboratory of Optical Reception, Academy of Sciences Armenian SSR

"Possible Mechanisms of the Magnetic Sensitivity of Birds"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 23, No 8, Aug 70, pp 26-34

Abstract: The possible role of the pecten in the eyes of birds as a photoreceptor and orientation factor which responds to Earth's magnetic fields during flight is discussed. The structure of the organ is described, and the results of investigations of its role and functions are reported. The processes which take place in the pecten of birds under the influence of an alternating magnetic field are as follows: As a result of irregularities in flight paths (e.g., changes in speed and altitude, head movements, etc.) the magnetic field stimulates heparin secretion and causes its concentration in the vascular network of the pecten. As a result of its negative electric charge and chemical properties, the heparin produces the excitation of the central nervous system. Through electromagnetic induction the alternating magnetic field causes the appearance of electromagnetic forces in the blood vessels of the pecten, which tend to irritate the vascular receptors of the pecten and the optical nerve fibers (with which the pecten is in contact). The combined action of the magnetic field and light on the pecten

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USSR

DANILOV, V. I., et al, Biologicheskiy Zhurnal Armenii, Vol 23, No 8, Aug 70, pp 26-34

creates conditions for a photomagnetic effect in the organ, leading to the formation of diffused electric waves which tend to excite the optical nerve fibers. On this basis, the pecten may be regarded as performing the functions of a biological photomagnetic magnetometer. Further experimental and theoretical study of this hypothesis are necessary.

2/2

USSR

UDC 577.1:615.7/9

MNDZHOYAN, A. L., GARIBDZHANYAN, B. T., ZAKHARYAN, R. A., and DEMIRCHYAN, D. K., Institute of Fine Organic Chemistry, Academy of Sciences Armenian SSR

"Changes in the Nucleotide Composition of RNA and DNA in Tissues of Tumor-Bearing Rats Upon Chemotherapy With Thio-TEPA"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 24, No 3, Mar 71, pp 3-10

Abstract: The effects of Thio-TEPA, a frequently used antitumor drug, in changing the nucleotide composition of RNA and DNA in rapidly proliferating tissues (the spleen and testes) of normal rats and in these tissues and tumor tissues in rats with S-45 sarcoma were studied. Thio-TEPA on intraperitoneal administration ten times in the maximum tolerated dose reduced the size of the spleen and testes in both normal rats and rats with a tumor. It also reduced the size of the tumor in rats with sarcoma as compared with controls not exposed to the effect of the drug. The nucleotide composition of both RNA and DNA in the spleen and testes was altered by the drug, principally because of alkylation of guanine at N_7, whereas there were no significant changes in the nucleotide composition of RNA in tumor tissue. The action of Thio-TEPA on rapidly proliferating tissue